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(19) (CA) APPLICATION FOR CANADIAN PATENT (12)

(54) Retractable Dumbbell Support Bench

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(71) Same as inventor

(57) 15 Claims

Notice: This application is as filed and may therefore contain an incomplete specification.



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ABSTRACT OF THE DISCLOSURE:

An exercise bench for movably supporting a pair of dumbbells on opposed sides of the bench within reach of a user. The inventive device includes a main frame having a seat supported thereby with a back rest pivotally mounted to the seat. A centre stanchion extends from the back rest to the main frame and can be adjusted so as to position the back rest at a desired angle. A pair of dumbbell supports are pivotally mounted to the centre stanchion and are each operable to movably support a dumbbell thereon. A foot actuator connected to the dumbbell supports by a cable is operable both to pivot the dumbbell supports into reach prior to commencing of an exercise procedure, and the pivot the supports out of the way during the exercise procedure.

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## RETRACTABLE DUMBBELL SUPPORT BENCH

FIELD OF THE INVENTION:

The present invention relates to exercise bench structures and more particularly pertains to a retractable dumbbell support bench for movably supporting a pair of dumbbells on opposed sides of the bench within reach of a user.

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DESCRIPTION OF THE PRIOR ART:

The use of exercise bench structures is known in the prior art. More specifically, exercise bench structures heretofore devised and utilized for the purpose of supporting exercise weights proximal to a user are known to consist basically of familiar, expected, and obvious structural configurations, notwithstanding the myriad of designs encompassed by the crowded prior art which have been developed for the fulfilment of countless objectives and requirements.

For example, dumbbell position rack is illustrated in United States patent No. 4,666,150, which includes a saddle mountable on telescoping tubular members which will support a complete dumbbell thereon. The saddle includes an open area centrally located therethrough to allow a hand to pass through on the return of the dumbbell to the saddle. A guide positioned on the saddle above the open area directs the plates or assembled weight of a dumbbell away from the open area, thereby positioning the dumbbell into the resting area of the saddle.

Another patent of interest is United States patent 4,711,449, which teaches a weightlifting safety device having a bar and weight support assemblies depending vertically for support on a support surface at a predetermined elevated position. The attachment of the elements of the safety device to a standard barbell permits relative rotation therebetween and, in one form of the invention, includes a dampening means to limit such relative rotation. The support system is configured to be readily assembled onto and dissembled from a barbell.

Other known prior art exercise bench structures are disclosed in United States patent No. 4,955,604; United States patent No. 4,477,074; United States patent No. 4,471,956; and United States patent No. 4,406,452.

While these devices fulfil their respective, particular objectives and requirements, 5 the aforementioned patents do not disclose a retractable dumbbell support bench for movably supporting a pair of dumbbells on opposed sides of the bench within reach of a user which includes a main frame having a seat supported thereby with a back rest pivotally mounted to the seat, a centre stanchion extending from the back rest to the main frame which may be adjusted so as to position the back rest at a desired angle, a pair of dumbbell 10 supports pivotally mounted to the centre stanchion and each operable to movably support a dumbbell thereon, and a foot actuator connected to the dumbbell supports by a cable, whereby the foot actuator is operable both to pivot the dumbbell supports into reach of a user prior to commencing of an exercise procedure, and to pivot the supports out of the way during the exercise procedure.

15 In these respects, the retractable dumbbell support bench according to the present invention substantially departs from the conventional concepts and designs of the prior art and, in so doing, provides an apparatus primarily developed for the purpose of movably supporting a pair of dumbbells on opposed sides of the bench within a reach of a user.

20 **SUMMARY OF THE INVENTION:**

In view of the foregoing disadvantages inherent in the known types of exercise bench structures now present in the prior art, the present invention provides a new retractable dumbbell support bench construction wherein the same can be utilized for movably supporting a pair of dumbbells on opposed sides of the bench within a reach of 25 a user. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new retractable dumbbell support bench apparatus and method which has many of the advantages of the exercise bench structures mentioned heretofore and many novel features that result in a retractable dumbbell support bench which is not anticipated, rendered obvious, suggested, or even implied, by any of the 30 prior art exercise bench structures, either alone or in any combination thereof.

To attain this, the present invention generally comprises an exercise bench for movably supporting a pair of dumbbells on opposed sides of the bench within reach of a user. The inventive device includes a main frame having a seat supported thereby with a back rest pivotally mounted to the seat. A centre stanchion extends from the back rest to the main frame and can be adjusted so as to position the back rest at a desired angle. A pair of dumbbell supports are pivotally mounted to the centre stanchion and are each operable to movably support a dumbbell thereon. A foot actuator connected to the dumbbell supports by a cable, allowing the dumbbell supports to be pivoted into reach of a user prior to commencing of an exercise procedure, and to pivot the supports out of the way during the exercise procedure.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the invention that will be described hereinafter and which will form the subject matter of the claims appended hereto.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practised and carried out in various ways. Also, it is to be understood that the phraseology and terminology herein are for the purpose of description and should not be regarded as limiting.

As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

Further, the purpose of the foregoing abstract is to enable the United States Patent Office and that the public generally, and especially the scientists, engineers and practitioners in the art who are not familiar with patent or legal terms or phraseology, to determine quickly from a cursory inspection the nature and essence of the technical disclosure of the application. The abstract is neither intended to define the invention of the application, which is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

It is therefore an object of the present invention to provide a new retractable dumbbell support bench apparatus and method which has many of the advantages of the exercise bench structures mentioned heretofore and many novel features that result in a retractable dumbbell support bench which is not anticipated, rendered obvious, suggested, or even implied by any of the prior art exercise bench structures, either alone in any combination thereof.

It is another object of the present invention to provide a new retractable dumbbell support bench which may be easily and efficiently manufactured and marketed.

It is further object of the present invention to provide a new retractable dumbbell support bench which is of a durable and reliable construction.

An even further object of the present invention is to provide a new retractable dumbbell support bench which is susceptible of a low cost of manufacture with regard to both materials and labour and which, accordingly, is then susceptible of low prices of sale to the consuming public, thereby making such retractable dumbbell support benches economically available to the buying public.

Still yet another object of the present invention is to provide a new retractable dumbbell support bench which provides in the apparatuses and methods of the prior art some of the advantages thereof, while simultaneously overcoming some of the disadvantages normally associated therewith.

Still another object of the present invention is to provide a new retractable dumbbell support bench for movably supporting a pair of dumbbells on opposed sides of the bench within reach of a user.

partially within the receiving member 44 and may be secured in a desired orientation relative to the receiving member by a pin 48 which extends through an aperture in the receiving member and any one of a plurality of apertures 50 within the telescoping member. A "U"-shaped support 52 is secured to the telescoping member 46 and includes 5 a pair of dumbbell engaging cups 54 secured to upper distal ends of the "U"-shaped support. The dumbbell engaging cups 54 may be dimensioned so as to engage the bar 56 of the dumbbell 40, as illustrated in Figure 1 or, alternatively, the dumbbell engaging cups may be configured so as to receive the weight portions 58 of a dumbbell 40. Regardless 10 of the size or configuration of the dumbbell engaging cups 54, the "U"-shaped support 52 permits a user to grasp a centre of the bar 56 of the dumbbell 40 to lift the dumbbell from the dumbbell support assembly 38.

Because of the pivotal mounting of the dumbbell support assemblies 38 to the centre stanchion 30, a pair of dumbbells 40 may be moved within reach of a user residing on the seat 20 and leaning against the back rest 24, whereby the user may grasp the dumbbells to 15 perform an exercise, with the dumbbell supports 38 being movably out of the way during such exercise. To effect remote actuation or movement of the dumbbells support assemblies 38 by the user, a foot actuator 60 is pivotally mounted to the lower member 14 and mechanically coupled to the dumbbell support assemblies by at least one cable 62. As best illustrated in Figure 2, the foot actuator 60 comprises a pair of levers 64 having a cross 20 bar 65 extending therebetween at outer distal ends of the levers. The levers 64 are pivotally mounted to the main frame 12 by at least one unlabelled hinge, with the cables 62 each being coupled to an inner end of the individual levers. The cables 62 each extend over an individual one of a pair of guide pulleys 66 which are mounted to the main frame 12, and preferably mounted to a pair of lateral members 68 which project from the lower 25 member 14 and co-operate to further stabilize the main frame 12. The cables 62 further traverse over a pair of adjustment pulleys 70 which are movably positioned along the upper members 16 and secured thereto by adjustment pulley pins 72 which extend through any of the apertures 34 in the upper members. Thus, the adjustment pulleys 70 can be positioned so as to remove slack from the cables 62 resulting from a movement of the back 30 rest 24. To provide a return force tending to pivot the dumbbell support assemblies 38

together behind the back rest 24, at least one spring 74 is provided. The spring 74 may extend between the dumbbell support assemblies 38 or, alternatively, a pair of such springs 74 may extend from the dumbbell assemblies 38 to a portion of the main frame 12, as illustrated in Figure 3.

5 In use, the retractable dumbbell support bench 10 is operable to retain a pair of dumbbells 40 within the dumbbell support assemblies 34, whereby a user may depress the foot actuator 60 to pivot the dumbbell support assemblies to opposed lateral sides of the back rest 24. The dumbbells 40 may then each be grasped by the user and lifted from the associated dumbbell support assembly 38. The dumbbell support assemblies 38 may then 10 be pivoted out of the way by a releasing of the foot actuator 60 which permits the spring 74 to retract the dumbbell support assemblies. Commencing of an exercise procedure with the dumbbells 40 may then begin, whereafter the dumbbell support assemblies 38 may be pivoted forwardly by an actuation of the foot actuator 60 and the dumbbells placed back upon the support assemblies. The retractable dumbbell support bench 10 greatly increases 15 safety during the exercise procedure and permits an individual to perform various dumbbell exercises without the need for a work-out partner, spotter, or the like.

As to a further discussion of the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

20 With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation; assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be 25 encompassed by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described and, accordingly, all suitable modifications and equivalents 30 may be resorted to, falling within the scope of the invention.

**WHAT IS CLAIMED IS:**

1. A new retractable dumbbell support bench comprising:
  - a main frame;
  - a seat mounted to said main frame;
  - a back rest pivotally mounted to said main frame;
  - 5 a centre stanchion pivotally mounted to said back rest and adjustably secured to said main frame for adjusting the incline of said back rest;
  - a first dumbbell support assembly means for supporting a first dumbbell pivotally mounted to said centre stanchion;
  - 10 a second dumbbell support assembly means for supporting a second dumbbell pivotally mounted to said centre stanchion; and
  - foot actuator means mechanically coupled to said dumbbell support assembly means for selectively pivoting said dumbbell support assembly means about said centre stanchion.
2. The new retractable dumbbell support bench of claim 1, wherein said foot actuator means comprises a pair of levers having a cross bar extending between said levers at outer distal ends of the levers, with the levers being pivotally mounted to said main frame, and a pair of cables each coupled to an inner end of an individual one of said levers, said cables further being coupled to said dumbbell support assembly means such that a pivoting of said levers causes said dumbbell support assembly means to pivot in a first direction.
3. The new retractable dumbbell support bench of claim 2, wherein said foot actuator means further comprises at least one spring coupled to said dumbbell support assembly means for biasing said dumbbell support assembly means in a second direction.

4. The new retractable dumbbell support bench of claim 3, wherein said foot actuator means further comprises at least one pulley coupled to said main frame for guiding at least one of said cables.
5. The new retractable dumbbell support bench of claim 4, wherein each of said dumbbell support assembly means comprises a pair of arms pivotally mounted to said centre stanchion, a receiving member fixedly secured to outer distal ends of said arms, a telescoping member movably positioned at least partially within said receiving member, a substantially "U"-shaped support secured to an upper end of said telescoping member, and a pair of dumbbell engaging cups, each of said dumbbell engaging cups being secured to an individual upper distal end of said "U"-shaped support.
6. The new retractable dumbbell support bench of claim 5, wherein said dumbbell engaging cups are operable to engage a bar of either of the first and second dumbbells.
7. The new retractable dumbbell support bench of claim 5, wherein said dumbbell engaging cups are operable to engage a weight of either of said first and second dumbbells.
8. A new retractable dumbbell support bench comprising:
  - a main frame;
  - a seat mounted to said main frame;
  - a back rest pivotally mounted to said main frame;
  - 5 a centre stanchion pivotally mounted to said back rest and adjustably secured to said main frame for adjusting the incline of said back rest;
  - a first dumbbell support assembly means for supporting a first dumbbell pivotally mounted to said centre stanchion;

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a second dumbbell support assembly means for supporting a second dumbbell  
10 pivotally mounted to said centre stanchion, each of said dumbbell support assembly means  
comprising at least one arm pivotally mounted to said centre stanchion, a receiving member  
fixedly secured to an outer distal end of said arm, a telescoping member movably  
positioned at least partially within said receiving member, a substantially "U"-shaped  
support secured to an upper end of said telescoping member, and a pair of dumbbell  
15 engaging cups, each of said dumbbell engaging cups being secured to an individual upper  
distal end of said "U"-shaped support; and

foot actuator means mechanically coupled to said dumbbell support assembly  
means for selectively pivoting said dumbbell support assembly means about said centre  
stanchion, said foot actuator means comprising at least one lever pivotally mounted to said  
20 main frame, and at least one cable coupled to an inner end of said at least one lever, said  
cable further being coupled to at least one of said dumbbell support assembly means such  
that a pivoting of said lever causes said at least one dumbbell support assembly means to  
pivot in a first direction.

9. The new retractable dumbbell support bench of claim 8, wherein said foot  
actuator means further comprises at least one spring coupled to said dumbbell support  
assembly means for biasing said dumbbell support assembly means in a second direction.

10. The new retractable dumbbell support bench of claim 9, wherein said foot  
actuator means further comprises at least one pulley coupled to said main frame for guiding  
said at least one cable.

11. The new retractable dumbbell support bench of claim 10, wherein said  
dumbbell engaging cups are operable to engage a bar of either of the first and second  
dumbbells.

12. The new retractable dumbbell support bench of claim 10, wherein said dumbbell engaging cups are operable to engage a weight of either of the first and second dumbbells.

13. A new retractable dumbbell support bench comprising:  
a main frame;  
a seat mounted to said main frame;  
a back rest pivotally mounted to said main frame;  
5 a centre stanchion pivotally mounted to said back rest and adjustably secured to said main frame for adjusting the incline of said back rest;  
first dumbbell support assembly means for supporting a first dumbbell pivotally mounted to said centre stanchion;  
a second dumbbell support assembly means for supporting a second dumbbell pivotally mounted to said centre stanchion, each of said dumbbell support assembly means comprising a pair of arms pivotally mounted to said centre stanchion, a receiving member fixedly secured to outer distal end of said arms, a telescoping member movably positioned at least partially within said receiving member, a substantially "U"-shaped support secured to an upper end of said telescoping member, and a pair of dumbbell engaging cups, each 10 of said dumbbell engaging cups being secured to an individual upper distal end of said "U"-shaped support; and

15 foot actuator means mechanically coupled to said dumbbell support assembly means for selectively pivoting said dumbbell support assembly means about said centre stanchion, said foot actuator means comprising a pair of levers having a cross bar extending between said levers at outer distal ends of the levers, with the levers being pivotally mounted to said main frame, a pair of cables each coupled to an inner end of an individual one of said levers, said cables further being coupled to said dumbbell support assembly means such that pivoting of said levers causes said dumbbell support assembly means to

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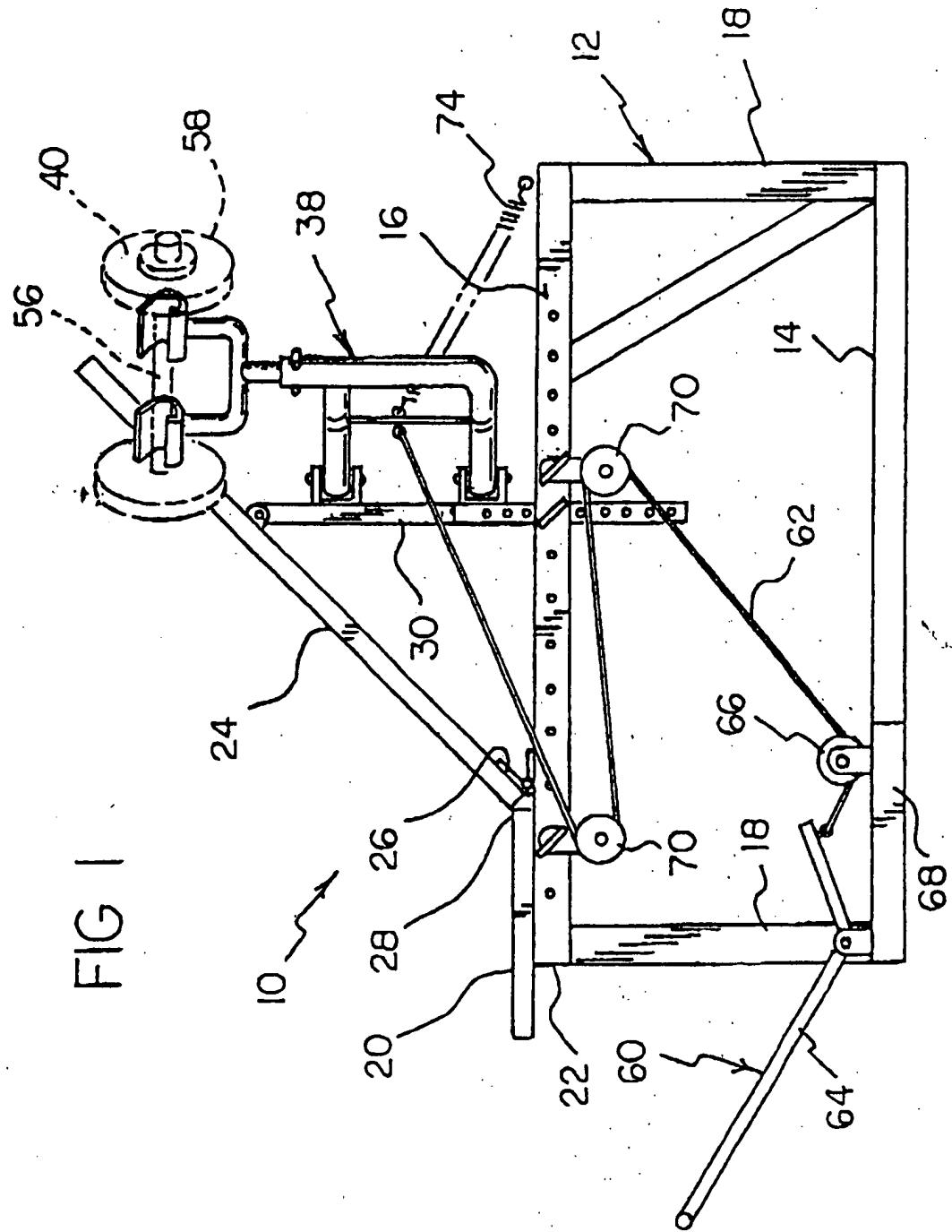
25 pivot in a first direction, at least one spring coupled to said dumbbell support assembly means for biasing said dumbbell support assembly means in a second direction, and a pair of guide pulleys coupled to said frame, and a pair of adjustment pulleys movably coupled to said main frame, with each of said cables extending over at least two of said pulleys.

14. The new retractable dumbbell support bench of claim 13, wherein said dumbbell engaging cups are operable to engage a bar of either of the first and second dumbbells.

15. The new retractable dumbbell support bench of claim 13, wherein said dumbbell engaging cups are operable to engage a weight of either of the first and second dumbbells.

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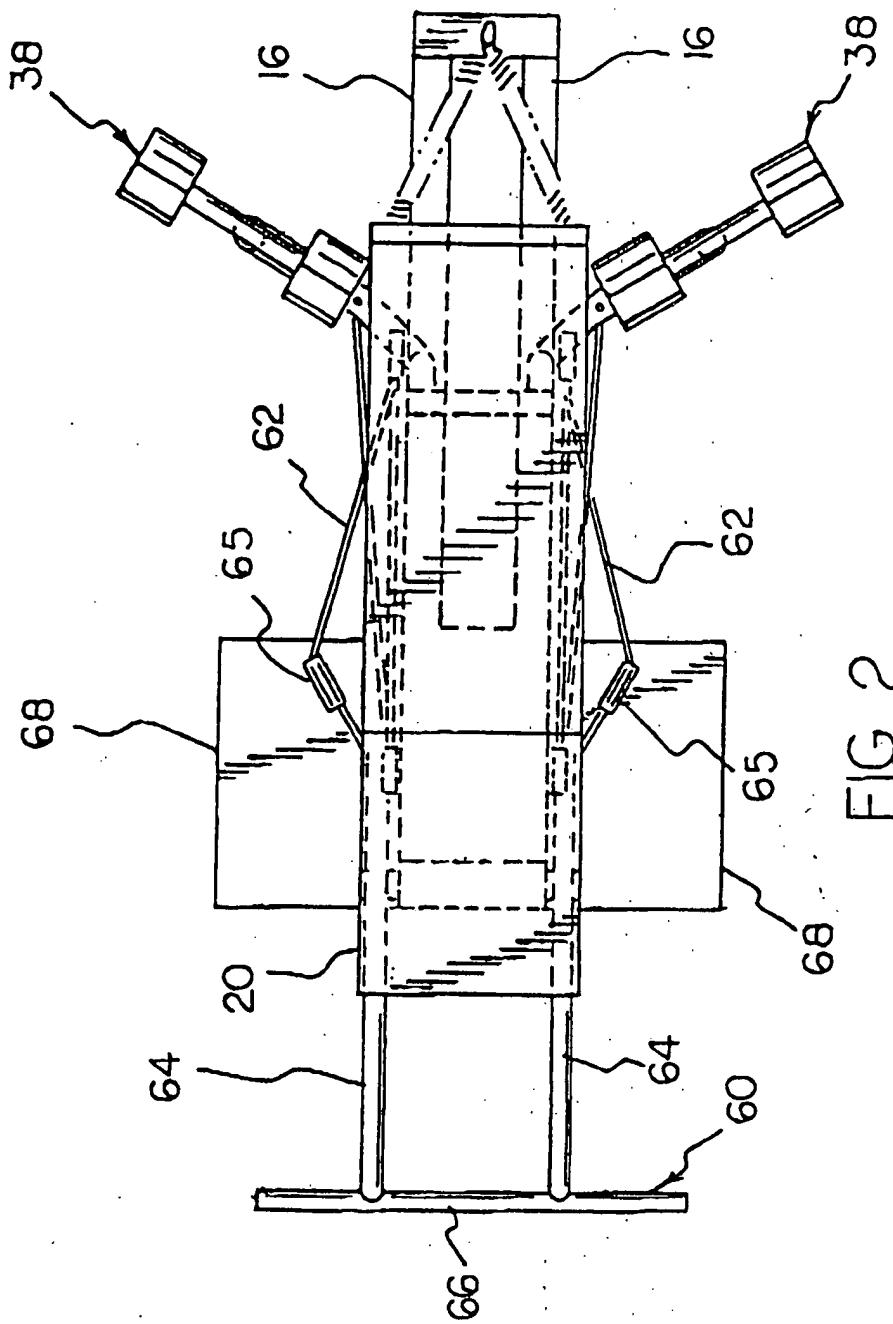
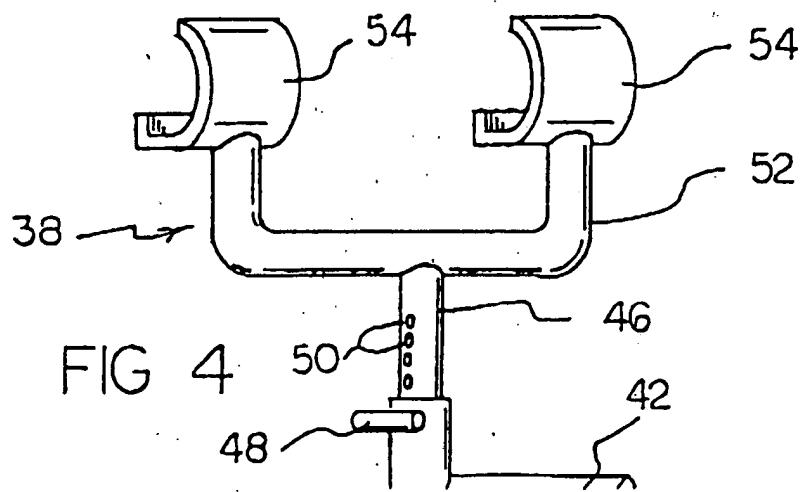
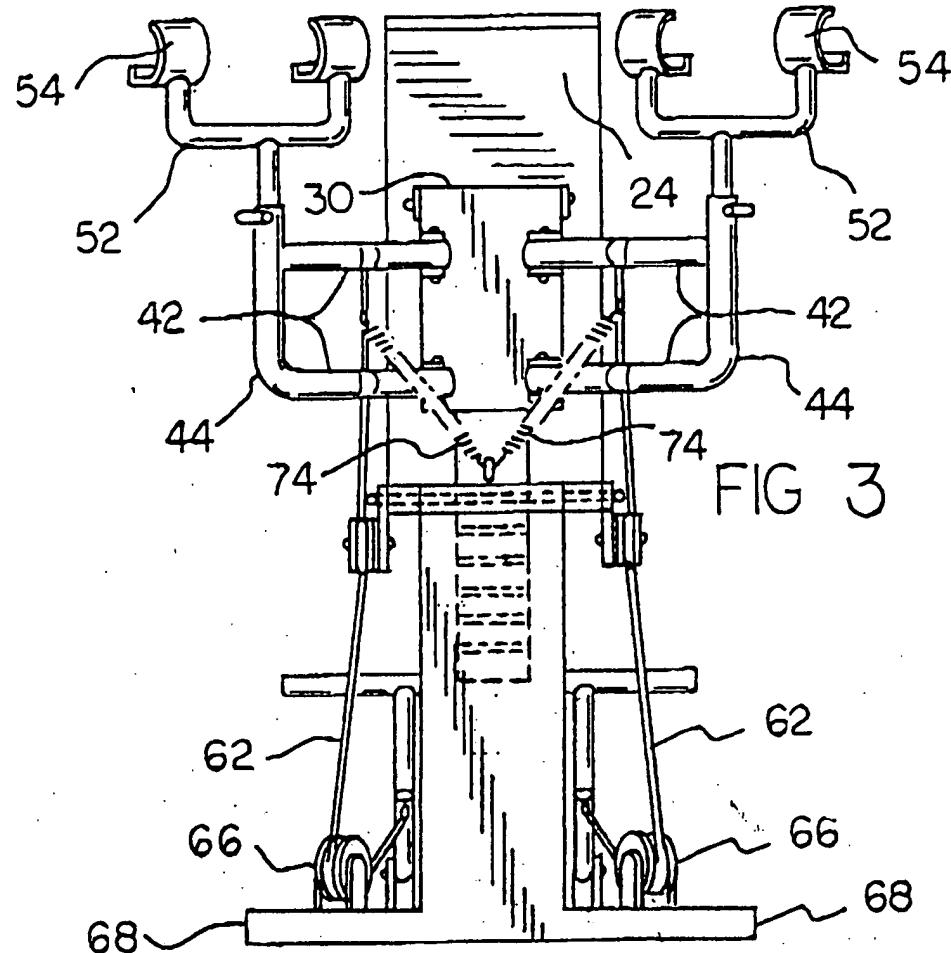


FIG 2

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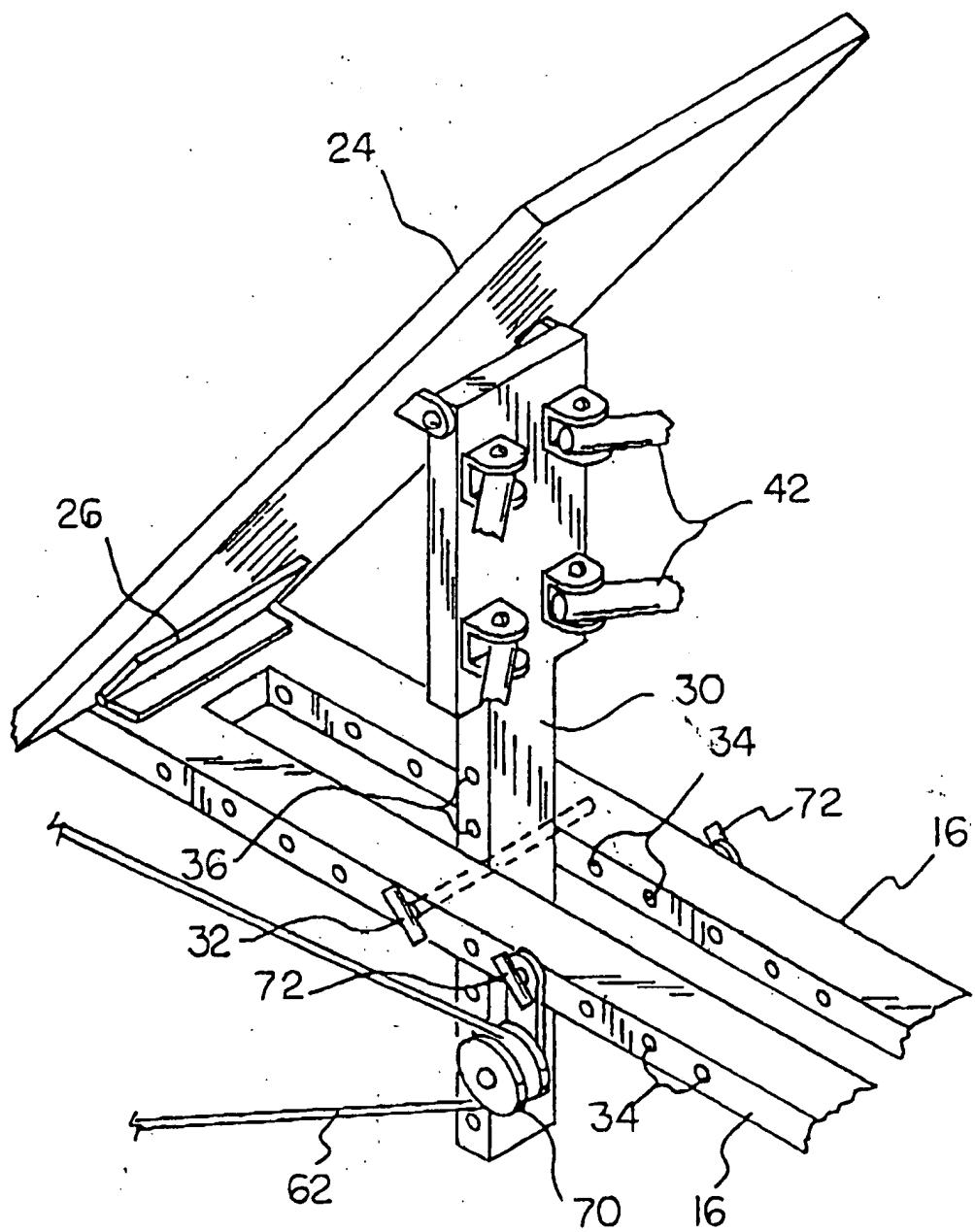


FIG 5